

## User's Guide



## VersaTools® MSW 4V and MSW 4S Mini Video Switcher

# Precautions

## Safety Instructions • English



This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.



This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

### Caution

**Read Instructions** • Read and understand all safety and operating instructions before using the equipment.

**Retain Instructions** • The safety instructions should be kept for future reference.

**Follow Warnings** • Follow all warnings and instructions marked on the equipment or in the user information.

**Avoid Attachments** • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

## Consignes de Sécurité • Français



Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).



Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.

### Attention

**Lire les instructions** • Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.

**Conservier les instructions** • Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.

**Respecter les avertissements** • Observer tous les avertissements et consignes marqués sur le matériel ou présentés dans la documentation utilisateur.

**Eviter les pièces de fixation** • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

## Sicherheitsanleitungen • Deutsch



Dieses Symbol soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.



Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.

### Achtung

**Lesen der Anleitungen** • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits- und Bedienungsanleitungen genau durchlesen und verstehen.

**Aufbewahren der Anleitungen** • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.

**Befolgen der Warnhinweise** • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.

**Keine Zusatzgeräte** • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

## Instrucciones de seguridad • Español



Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.



Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.

### Precaucion

**Leer las instrucciones** • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.

**Conservar las instrucciones** • Conservar las instrucciones de seguridad para futura consulta.

**Obedecer las advertencias** • Todas las advertencias e instrucciones marcadas en el equipo o en la documentación del usuario, deben ser obedecidas.

**Evitar el uso de accesorios** • No usar herramientas o accesorios que no sean específicamente recomendados por el fabricante, ya que podrían implicar riesgos.

### Warning

**Power sources** • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.

**Power disconnection** • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).

**Power cord protection** • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.

**Servicing** • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.

**Slots and openings** • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.

**Lithium battery** • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

### Avertissement

**Alimentations** • Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité : n'essayez pas de le contourner ni de le désactiver.

**Déconnexion de l'alimentation** • Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.

**Protection du cordon d'alimentation** • Acheminer les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas écrasés ou pincés par des objets.

**Réparation-maintenance** • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à ces opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à de hautes tensions et autres dangers.

**Fentes et orifices** • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.

**Lithium Batterie** • Il a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au reut les batteries usagées conformément aux instructions du fabricant.

### Vorsicht

**Stromquellen** • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdschluß, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.

**Stromunterbrechung** • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stromversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.

**Schutz des Netzkabels** • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder Objekte darauf- oder unmittelbar dagegestellt werden können.

**Wartung** • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst öffnen, da beim Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder andere Gefahren bestehen.

**Schlitze und Öffnungen** • Wenn das Gerät Schlitze oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Objekten blockiert werden.

**Litium-Batterie** • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

### Advertencia

**Alimentación eléctrica** • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puentearla ni eliminarla.

**Desconexión de alimentación eléctrica** • Para desconectar con seguridad la acometida de alimentación eléctrica al equipo, desenchufar todos los cables de alimentación en el panel trasero del equipo, o desenchufar el módulo de alimentación (si fuera independiente), o desenchufar el cable del receptáculo de la pared.

**Protección del cables de alimentación** • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.

**Reparaciones/mantenimiento** • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario deba acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/ mantenimiento de este equipo, ya que al abrir o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.

**Ranuras y aberturas** • Si el equipo posee ranuras o orificios en su caja/alojamiento, es para evitar el sobrecalentamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.

**Batería de litio** • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta batería únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Desachar las baterías usadas siguiendo las instrucciones del fabricante.

# FCC Class A Notice

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Note: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to ensure compliance.

# Extron's Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

### USA, Canada, South America, and Central America:

Extron Electronics  
1230 South Lewis Street  
Anaheim, CA 92805, USA

### Asia:

Extron Electronics, Asia  
135 Joo Seng Road, #04-01  
PM Industrial Bldg.  
Singapore 368363

### Europe, Africa, and the Middle East:

Extron Electronics, Europe  
Beeldschermweg 6C  
3821 AH Amersfoort  
The Netherlands

### Japan:

Extron Electronics, Japan  
Kyodo Building  
16 Ichibancho  
Chiyoda-ku, Tokyo 102-0082  
Japan

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions or non-Extron authorized modification to the product.

*If it has been determined that the product is defective, please call Extron and ask for an Applications Engineer at (714) 491-1500 (USA), 31.33.453.4040 (Europe), 65.6383.4400 (Asia), or 81.3.3511.7655 (Japan) to receive an RA# (Return Authorization number). This will begin the repair process as quickly as possible.*

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

安全须知 • 中文



这个符号提示用户该设备用户手册中的操作和维护说明。



这个符号警告用户该设备机壳内暴露的危险电压，有触电危险。

注意

**阅读说明书** • 用户使用该设备前必须阅读并理解有安全和使用说明。

**保存说明书** • 用户应保存安全说明书以备将来使用。

**遵守警告** • 用户应遵守产品和用户指南上的所有安全和操作说明。

**避免追加** • 不要使用该产品厂商没有推荐的工具或追加设备，以避免危险。

警告

**电源** • 该设备只能使用产品上标明的电源。设备必用有地线供电系统供电。第三条线（地线）是安设施，不能不用或跳过。

**拔掉电源** • 为安全地从设备拔掉电源，请拔掉所有设备后或桌面电源的电源线，或任何接到市电系统电源线。

**电源线保护** • 妥善布线，避免被踩踏，或重物挤压。

**维护** • 所有维修必须由认证的维修人员进行。设备部没有用户可以更换的零件。为避免出现触电危险不要自己试图打开设备盖子维修该设备。

**通风孔** • 有些设备机壳上有通风槽或孔，它们是用防止机内敏感元件过热。不要用任何东西挡住通风孔。

**锂电池** • 不正确的更换电池会有爆炸的危险。必须使与厂家推荐的相同或相近型号的电池。按照生产厂的议处理废弃电池。

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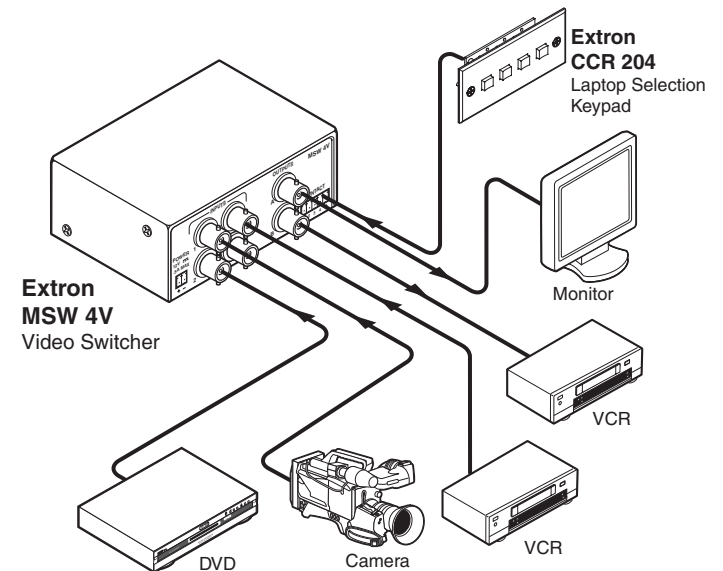
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## About the MSWs

The Extron MSW 4V and MSW 4SV are four-input, two-parallel-output, mini video switchers (MSWs). The MSWs are members of the Extron VersaTools® line of basic distribution amplifiers, switchers, and associated video accessories.

The MSW 4V switches among up to four NTSC, PAL, or SECAM composite video inputs on female BNC connectors and outputs two identical buffered composite video outputs on female BNC connectors (figure 1).



**Figure 1 — Typical MSW 4V application**

The MSW 4SV switches among four S-video (luminance [Y] and chrominance [C]) inputs on 4-pin mini DIN connectors. The selected S-video input is split, buffered, and output on 2 connectors:

- One S-video output on a 4-pin mini DIN connector
- One composite video output on a female BNC connector.

The switchers can be operated from the front panel or via a contact closure device connected to the rear panel, such as an Extron CCR 204 contact closure remote control or an IR 102 kit infrared remote control. The MSW also features a front panel selectable autoswitching mode that automatically switches to the highest numbered input with active sync pulses present.

The MSW ships with an external 12 VDC power supply.

### Installation

The 1U high, quarter rack width, MSW 4V and MSW 4SV can be mounted on a rack shelf, mounted under a desk or tabletop, or mounted on a projector bracket.

#### Rack mounting

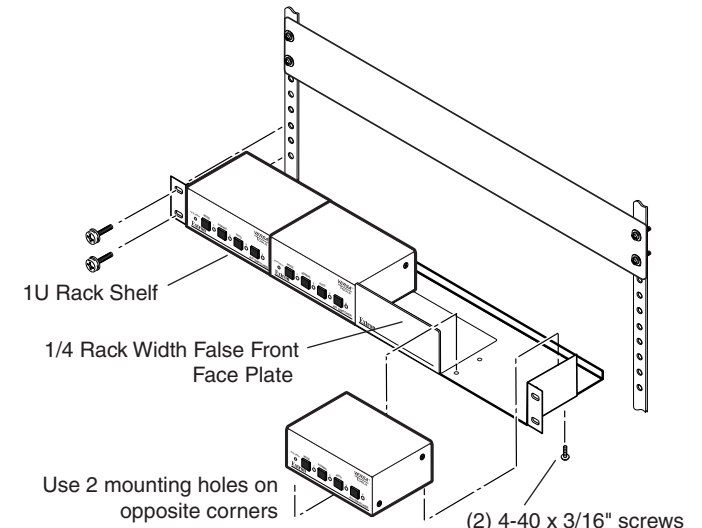
For optional rack mounting, mount the MSW on any of the following rack shelves:

- RSF 123 VersaTools 19" 1U rack shelf kit (part #60-190-20) (figure 2)
- RSB 123 VersaTools 19" basic 1U rack shelf (part #60-604-20)
- RSU 126 6" deep universal rack shelf kit (part #60-190-10)
- RSB 126 6" deep basic rack shelf (part #60-604-10)
- RSU 129 1U universal rack shelf kit (part #60-190-01) (figure 3)
- RSB 129 1U basic rack shelf (part #60-604-01)

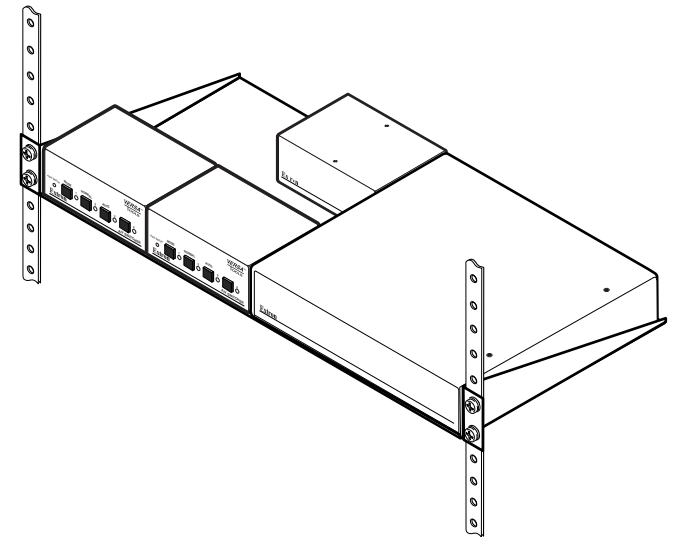
On the standard rack shelf, the MTP mounts in one of four locations to the rear of the rack or in one of four locations to the front of the rack.

1. If installed, remove the feet from the bottom of the MSW.
2. Mount the MSW on the rack shelf, using two 4-40 x 3/16" screws in opposite (diagonal) corners to secure the MSW to the shelf.
3. Install blank panel(s) or other unit(s) to the rack shelf.

**NOTE** Only products in the VersaTools line can be mounted to a VersaTools shelf. Most 1U rack-mountable Extron products can be mounted on the standard shelf.



**Figure 2 — MSW mounted on a VersaTools rack shelf**

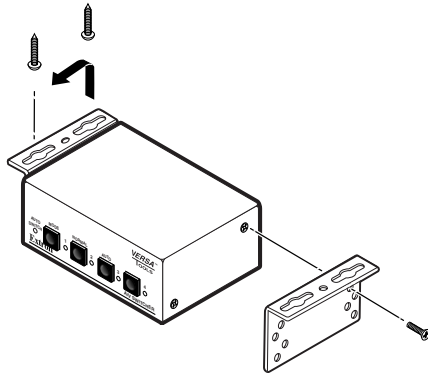


**Figure 3 — MSW mounted on a standard rack shelf**

## Furniture mounting

Furniture mount the MSW using the optional MBU 123 VersaTools® under-desk mounting kit (part #70-212-01) as follows:

1. If necessary, remove the feet from the bottom of the MSW.
2. Attach the mounting brackets to the MSW with the machine screws provided (figure 4).



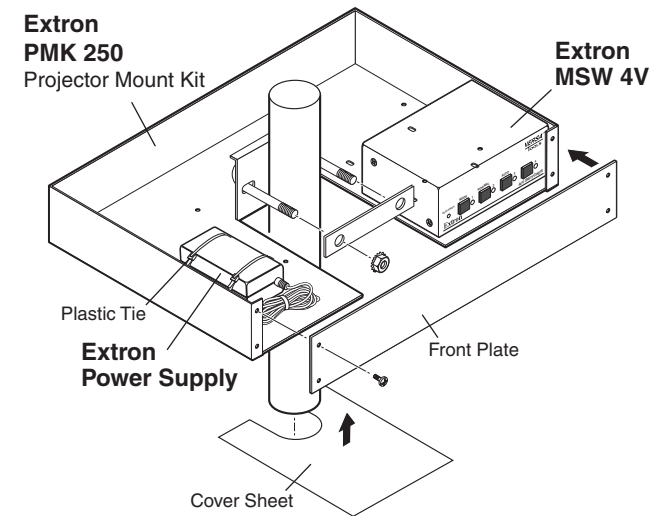
**Figure 4 — Furniture mounting the MSW**

3. Hold the MSW with the attached brackets against the underside of the table or other furniture. Mark the location of the screw holes of the bracket on the mounting surface.
4. Drill 3/32" (2 mm) diameter pilot holes, 1/4" (6.3 mm) deep in the mounting surface at the marked screw locations.
5. Insert #8 wood screws into the four pilot holes. Tighten each screw into the mounting surface until just less than 1/4" of the screw head protrudes.
6. Align the mounting screws with the slots in the brackets and place the MSW against the surface, with the screws through the bracket slots.
7. Slide the switcher slightly forward or back, then tighten all four screws to secure the MSW in place.

## Projector mounting

Projector mount the MSW using the optional PMK 100 (part #70-217-01), PMK 250 (part #70-562-02), or PMK 350 (part #70-563-02) under desk mounting kit.

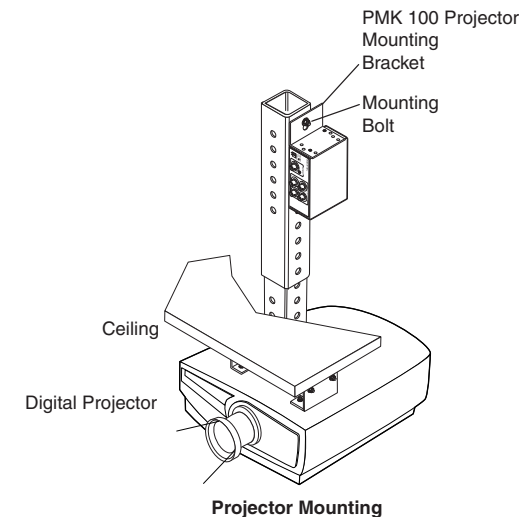
For the PMK 250 or PMK 350, follow the instructions included with the kit (figure 5).



**Figure 5 — Projector mounting the MSW with a PMK 250**

For the PMK 100, mount the MSW as follows:

1. If necessary, remove the feet from the bottom of the MSW.
2. Attach the mounting brackets to the MSW with the machine screws provided (figure 6).
3. Secure the MSW to a projector mount or other surface by inserting the mounting bolt through the bracket's slotted hole.



**Figure 6 — Projector mounting the MSW with a PMK 100**



## Vertical interval switching

The MSWs switch inputs during the vertical interval of the video signal that is input on input 1. In a genlocked system, switching to any input is glitch-free if one of the genlocked devices is connected to input 1.

## Rear panel connections

**NOTE** The MSW switches on the vertical interval of input 1. For seamless switching, ensure one of the genlocked devices is connected to input 1.

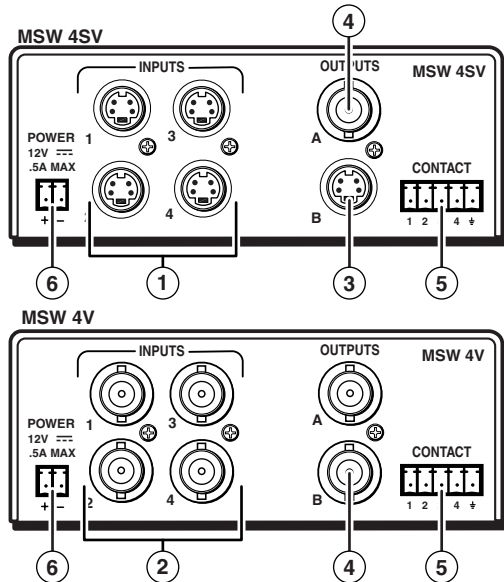
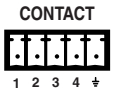


Figure 7 — MSW 4V and MSW 4SV rear panel

- ① **S-video Inputs 1 through 4 (MSW 4SV)** — For each input, connect an S-video source to one of these 4-pin mini DIN connectors.
- ② **Composite video Inputs 1 through 4 (MSW 4V)** — For each input, connect a composite video source to one of these BNC connectors.
- ③ **S-video Output (MSW 4SV)** — Connect an S-video display or other device to this 4-pin mini DIN connector for the S-video output.
- ④ **Composite video Output(s) (both switcher models)** — For each composite video output, connect a composite video display or other device to this BNC connector.

- ⑤ **Contact connector** — Connect a remote contact closure device to the switcher for remote control of the switcher, or daisy chain the switcher to other MSWs for remote control of the other switchers, via this 5-pin captive screw connector.



**NOTE** The switcher must be in normal (manual) switch mode for contact closure to work. See Mode selection, on page 9.

To select an input using a contact closure device, such as an Extron CCR 204 contact closure remote control (part #60-794-02) or a locally constructed device, momentarily short the pin for the desired input number to logic ground (pin 5). To force one of the inputs to be always selected, leave the short in place. The short overrides any front panel input selections.

You can also daisy chain multiple MSWs via the Contact connector for front panel control of all switchers; touch the input button on one MSW to switch all MSWs. Wire pin 1 to pin 1, pin 2 to pin 2, and so on.

- ⑥ **Power connector** — Plug the external 12 VDC power supply into this 2-pole captive screw connector. The power supply is included with the unit. Figure 8 shows how to wire the connector.

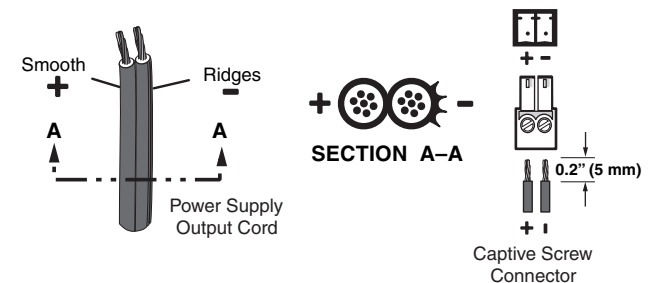


Figure 8 — Power connector wiring

**CAUTION** Power supply voltage polarity is critical. Incorrect voltage polarity can damage the power supply and the MSW. Identify the power cord negative lead by the ridges on the side of the cord (figure 8).

**CAUTION** The length of the exposed (stripped) copper wires is important. The ideal length is 0.2" (5 mm). Longer bare wires can short together. Shorter wires are not as secure in the captive screw connectors and could be pulled out.



**NOTE** Do not tin the power supply leads before installing the captive screw connector. Tinned wires are not as secure in the captive screw connectors and could be pulled out.

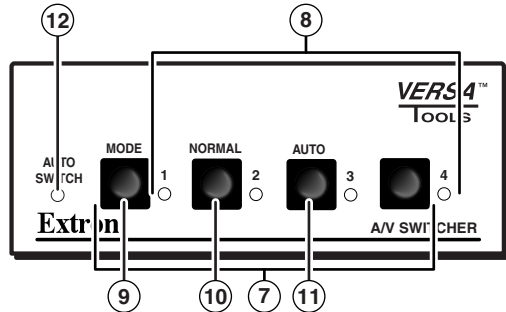
To verify the polarity before connection, plug in the power supply with no load and check the output with a voltmeter.

**WARNING** The two power cord wires must be kept separate while the power supply is plugged in. Remove power before wiring.

Alternately, an Extron P/S 100 Universal 12 VDC Power Supply, part #60-357-01, can power up to ten MSWs or other Extron 12 VDC devices using only one AC power connector.

## Front Panel Controls and Indicators

Figure 9 shows the front panels of the MSW 4V and MSW 4SV.



**Figure 9 — MSW 4V and MSW 4SV front panel**

## Input selection

- ⑦ **Input 1 through 4 buttons** — Each Input button selects the associated input for output.

The Input 1, Input 2, and Input 3 buttons are also used to toggle auto-switch mode on and off. See *Auto switch mode controls and indicators* and items ⑨, ⑩, and ⑪.

- ⑧ **Input 1 through 4 LEDs** — The Input LEDs identify the selected input.

## Autoswitch mode controls and indicators

- ⑨ **Mode button** — The Mode button is used with the Normal button or the Auto button to select the switching mode. Mode is a secondary function of the Input 1 button. See *Mode selection*, below.
- ⑩ **Normal button** — The Normal button is used with the Mode button to select normal mode. Normal is a secondary function of the Input 2 button.
- ⑪ **Auto(switch) button** — The Auto button is used with the Mode button to select autoswitching mode. Auto is a secondary function of the Input 3 button.
- ⑫ **Auto Switch LED** — When lit, the Auto Switch LED indicates that the switcher is in autoswitch mode. The MSW automatically switches to the highest numbered input with active sync pulses. When unlit, the switch is in normal (manual) mode.

## Mode selection

Turn autoswitch mode on or off as follows:

1. Press and **hold** the Mode (Input 1) button.
- 2a. **To select autoswitch mode** — Press and release the Auto (Input 3) button. The Auto Switch Mode Active LED lights.
- 2b. **To select normal mode** — Press and release the Normal (Input 2) button. The Auto Switch Mode Active LED goes off.
3. Release the Mode button.

Specifications

Video

Gain .....	Unity
Bandwidth	
MSW 4V .....	300 MHz (-3 dB)
MSW 4SV .....	250 MHz (-3 dB)
Crosstalk .....	<-60 dB @ 3.58 MHz
Switching speed .....	20 ms (max.)

Video input

Number/signal type	
MSW 4V .....	4 composite video
MSW 4SV .....	4 S-video
Connectors	
MSW 4V .....	4 female BNC
MSW 4SV .....	4 female 4-pin mini DIN
Nominal level .....	1 Vp-p for Y of S-video and for composite video 0.3 Vp-p for C of S-video
Minimum/maximum levels .....	0.4 V to 2.0 Vp-p with no offset
Impedance .....	75 ohms
Return loss	
MSW 4SV .....	<-25 dB, DC @ 10 MHz
MSW 4V .....	<-40 dB, DC @ 10 MHz
DC offset (max. allowable) .....	5.0 V
Input coupling .....	DC

Video output

Number/signal type	
MSW 4V .....	2 composite video
MSW 4SV .....	1 S-video, 1 composite video
Connectors	
MSW 4SV .....	1 BNC female, (1) 4-pin mini DIN female
MSW 4V .....	2 BNC female
Nominal level .....	1 Vp-p for Y of S-video and for composite video 0.3 Vp-p for C of S-video
Minimum/maximum levels .....	0.4 V to 2.0 Vp-p
Impedance .....	75 ohms
Return loss .....	<-30 dB @ 5 MHz
DC offset .....	±5 mV maximum with input at 0 offset
Switching type .....	Vertical interval

Sync

Standards .....	NTSC 3.58, NTSC 4.43, PAL, SECAM
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Control/remote — switcher

Contact closure .....	(1) 3.5 mm captive screw connector, 5 pole
Contact closure pin configurations	See switcher's panel.

General

External power supply .....	100 VAC to 240 VAC, 50/60 Hz, external, autoswitchable; to 12 VDC, regulated
Power input requirements .....	2.4 watts, 12 VDC, 0.2 A
Temperature/humidity .....	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Rack mount .....	Yes, with optional RSU 129 or RSB 129 1U rack shelf, part #60-190-01 or 60-604-01; RSU 126 or RSB 126 6" deep rack shelf, part #60-190-10 or 60-604-10; or the VersaTools® RSF 123 or RSB 123 rack shelf, part #60-190-20 or 60-604-20. Also furniture mountable with optional MBU 123 Mini Under-Desk Mounting Kit, part #70-212-01; or projector mountable with optional PMK 100 (part #70-217-01), PMK 250 (part #70-562-02), or PMK 300 (part #70-563-02) projector mounting kit

VersaTools® MSW 4V & 4SV, cont'd

Enclosure type .....	Metal
Enclosure dimensions .....	1.7" H x 4.3" W x 3.0" D (1U high, quarter rack wide) 4.3 cm H x 10.9 cm W x 6.5 cm D (Depth excludes connectors.)
Product weight .....	0.6 lbs (0.3 kg)
Shipping weight .....	3 lbs (2 kg)
Vibration .....	ISTA 1A in carton (International Safe Transit Association)
Listings .....	UL, CUL
Compliances .....	CE, FCC Class A, VCCI, AS/NZS, ICES
MTBF .....	30,000 hours
Warranty .....	3 years parts and labor

**NOTE**    *All nominal levels are at ±10%.*

**NOTE**    *Specifications are subject to change without notice.*